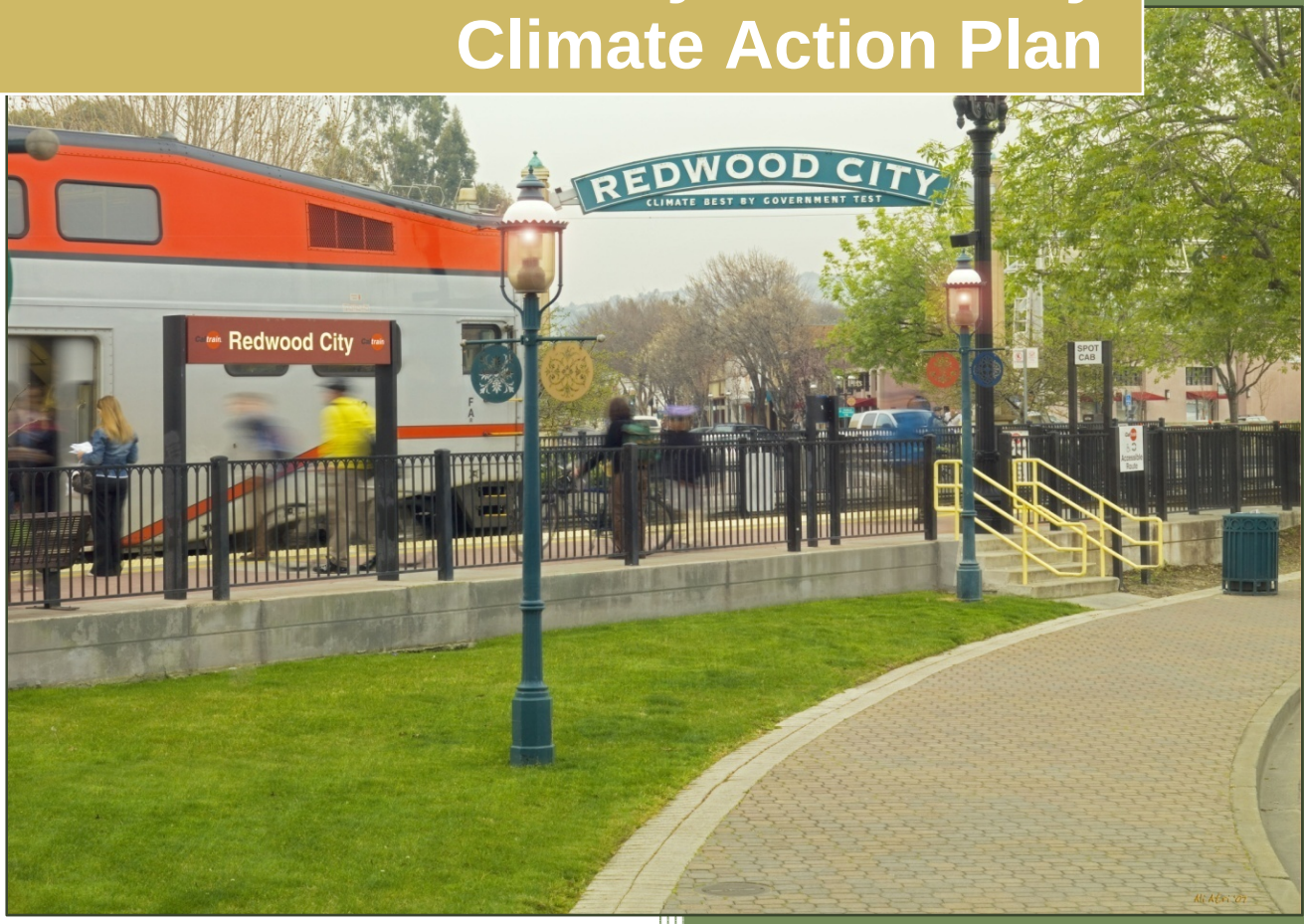
Redwood City Community Climate Action Plan



Redwood City Verde
It's easy being green

Acknowledgements

Community Climate Action Advisory Team

David Amann
Arnoldo Arreola
Michael Closson
Valerie Gibbs
Connie Guerrero
Casey Hartman
Paul Karr
Cathy Moyer
Ken Nitz
Rick Nordensten
Ernie Schmidt

Shuana Wilson-Mora, Manager of Facilitation Programs
Peninsula Conflict Resolution Center

Stanford University Urban Studies Students

Class: Planning for Peak Oil and Climate Change, Fall 2009
Instructor: Bethany Steiner

Redwood City Community

Thank you to residents and youth who provided their thoughtful comments and insights.

Redwood City Staff

Magda González, Deputy City Manager
Gary Hover, Superintendent, Parks, Recreation and Community Services
Terence Kyaw, Fleet Manager, Public Works
John LaTorra, Building and Inspection Manager
Susan Wheeler, Management Analyst
Malcolm Smith, Public Communications Manager
Erica Spacher, Neighborhood Liaison Coordinator
Beth Ross, Environmental Initiatives Manager

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Introduction

The Redwood City Community Climate Action Plan is meant to provide residents, community groups, and local organizations with practical tools they can use to help reduce their own, and the community's, impact on climate change.

The Plan is organized into five sections:

- Building Community
- Transportation and Land Use
- Built Environment;
- Urban Ecology, and
- Waste Reduction and Recycling

Each section includes an overview of that topic along with a set of strategies and specific actions they can implement to conserve energy and reduce greenhouse gas emissions in their home, on their block, in their neighborhood, and in the wider community. Many sections include great examples of actions from other cities that can inspire our own local efforts.

At the end of each section the reader will find a list of goals and indicators that can be used to guide local efforts and help the community as a whole stay on track to achieve the community's emission reduction goals. A table that outlines the potential emission reductions associated with each recommended action is also included.

Finally, the Redwood City Climate Action Plan includes a rich appendix. Here the reader will find additional information on the causes and impacts of climate change, a more detailed analysis of the Redwood City community's greenhouse gas emissions, community comments reflecting key interest areas, and climate action toolkits developed by Stanford University Urban Studies students to support community action.

Regular progress reports, community workshops, and facilitated conversations will provide opportunities for the community to participate in and assess the success of the Climate Action Plan's implementation and to make adjustments as needed.

For additional information on how you can take action on climate change contact –

Beth Ross
Redwood City
Environmental Initiatives Manager
(650) 780-5917
bross@redwoodcity.org

EXECUTIVE SUMMARY

Redwood City's *Community Climate Action Plan* is a call for the community to join together in our climate protection efforts. The Plan encourages and provides tools for residents and local business to take a real leadership role, together with the City, to reduce greenhouse gas emissions and curb the impacts of global warming. It's only through such a partnership that progress can be made - from single-family-homes to apartment buildings; from individual blocks to entire neighborhoods; and from large and small businesses to Redwood City's municipal operation. Together, with the full participation and involvement of all sectors of the community, we can achieve positive community action on climate change.

The City offers resources, programs, tools and education to support community members as they answer this important call to action. They will be encouraged to not only use the strategies and tools in this Plan themselves, but to encourage others to participate so that a critical mass of climate protection action can be achieved, across Redwood City.

Throughout this Plan there are references to Redwood City's New General Plan, in order to note that the two documents complement one another. It's important to clarify that this Community Climate Action Plan is not intended to be regulatory in nature; it is a toolkit for community members to engage in climate protection activities and thereby contribute to the City's greenhouse gas emissions reduction goals.

The City recognizes that it's crucial to lead by example, which it does by focusing on sustainable land use patterns, transportation demand management, energy efficiency, green building, and waste diversion.

The efforts of these three key partners in the Plan – residents, businesses, and the City - will be closely monitored. An annual progress report will be made to the community and municipal leaders, highlighting the Plan's successes, noting the lessons learned, and offering recommendations for modifying the Plan where necessary for maximum benefit.

It's all in the Redwood City Community Climate Action Plan, and you are invited to join the effort and be part of the climate solution.

Community Climate Action Plan Process

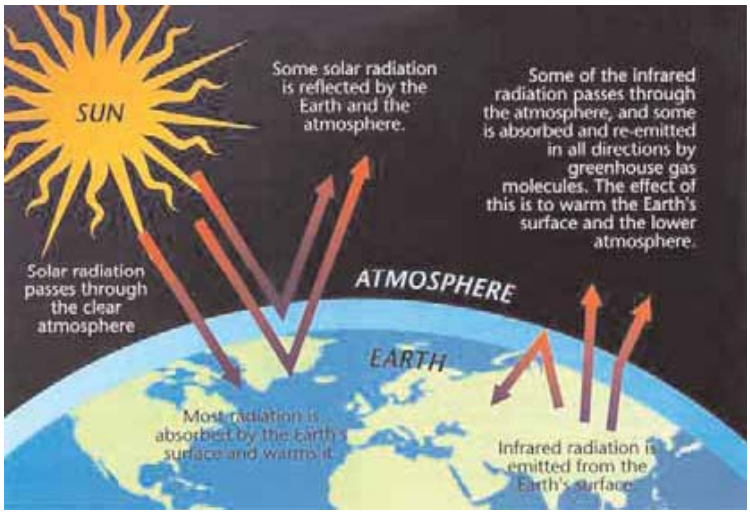
The City of Redwood City convened an eleven member Community Climate Action Advisory Team in the spring of 2009. The Team was comprised of community members who brought a diversity of perspectives to the table. The Team met throughout the spring in a planning process that was facilitated by the Peninsula Conflict Resolution Center and staffed by the City's Environmental Initiatives Manager. The Team's purpose was to create a Redwood City Community Climate Action Plan that would have broad community support and that would identify specific actions for reducing the community's impact on climate change. To accomplish its goal, the Team learned about the impacts of global warming, read climate action plans developed by similar communities, became familiar with State global warming legislation, learned about current efforts underway in Redwood City and conducted outreach in the community. The Team then used the information and knowledge they gathered to create a plan. The Redwood City Community Climate Action Plan is the product of the groups' research, thoughtful deliberations and dialogue within the community.

Understanding Climate Change[1]

To understand the importance of creating a Community Climate Action Plan, it is important to understand climate change, its impact on the local community and the benefits of addressing climate change, now.

Greenhouse Effect

A balance of naturally occurring gases dispersed in the Earth's atmosphere determines the planet's climate by trapping solar radiation. This phenomenon is known as the greenhouse effect. Overwhelming evidence suggests that modern human activity is artificially intensifying the greenhouse gas effect, causing global average surface temperatures to rise. This intensification is caused by activities that release carbon dioxide and other greenhouse gases into the atmosphere—most notably the burning of fossil fuels for transportation, electricity, and heat generation.


SUN
Some solar radiation is reflected by the Earth and the atmosphere.
Some of the infrared radiation passes through the atmosphere, and some is absorbed and re-emitted in all directions by greenhouse gas molecules. The effect of this is to warm the Earth's surface and the lower atmosphere.
Solar radiation passes through the clear atmosphere
ATMOSPHERE
EARTH
Most radiation is absorbed by the Earth's surface and warms it
Infrared radiation is emitted from the Earth's surface

The Greenhouse Gas Phenomenon

Source: US Environmental Protection Agency

[1] For additional information see Understanding Climate Change in the appendix

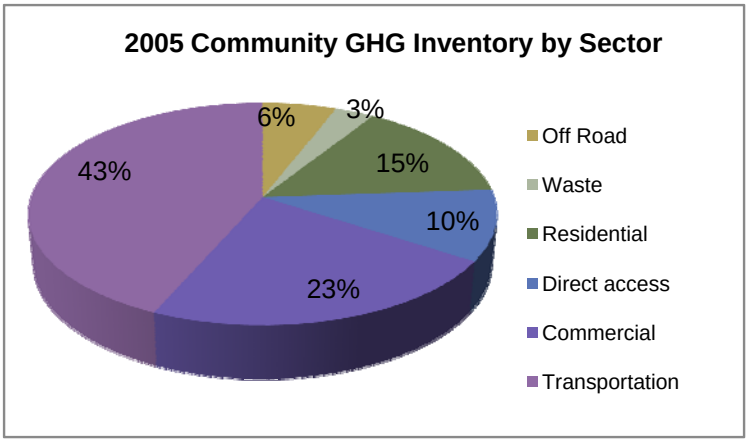
How Climate Change Impacts Redwood City

Rising temperatures affect local and global climate patterns, and these changes are forecasted to manifest themselves in a number of ways that may impact Redwood City. For example, the San Francisco Bay may experience rising sea levels and the Sacramento Delta may experience changes in salinity, affecting land uses, water sources, and agricultural activity. Changing temperatures will also likely result in more frequent and damaging storms accompanied by flooding and landslides, and summer water shortages. Reduced snow pack in the Sierra Nevada mountains may lead to water shortages, and the disruption of ecosystems and habitats is likely to occur. Concerned about these threats to quality of life, Redwood City is among many United States communities taking action to address climate change.

How a Community Climate Action Plan Benefits Redwood City

The debate is over. The overwhelming scientific consensus is that human-induced climate change is among the most pressing environmental and social problems facing this generation and those to come. It's not too late to address community climate change but the time to act is now. Focusing on climate protection and putting climate actions plans in place provides many community benefits in addition to mitigating the negative consequences of climate change. Concentrating on energy efficiency and water conservation helps consumers to reduce their utility bills. Residential, commercial and municipal green building provides reduced operating costs, increases productivity and improves indoor air quality. Evidence also indicates that green buildings may have increased real estate value. Improving mobility in the community, has a positive impact on community health as residents enjoy the benefits of improved fitness from walking and biking more and driving less. Reducing traffic congestion results in improved air quality which is particularly important in neighborhoods with high incidence of asthma. The local economy also benefits as new jobs are created to meet the demand for green technological solutions and residents look for options to retrofit their homes and businesses. Mitigating the negative consequences and focusing on solutions that improve quality of life are powerful motivators for taking action on climate change.

Redwood City Community Greenhouse Gas Emissions[2]



A first step in Climate Action Planning, is understanding community greenhouse gas emissions through the completion of a greenhouse gas emissions inventory. Redwood City's Community Greenhouse Gas Emissions Inventory was completed using the Clean Air and Climate Protection (CACP) software

[2] A more detailed analysis of greenhouse gas emissions and projections is provided in the appendix

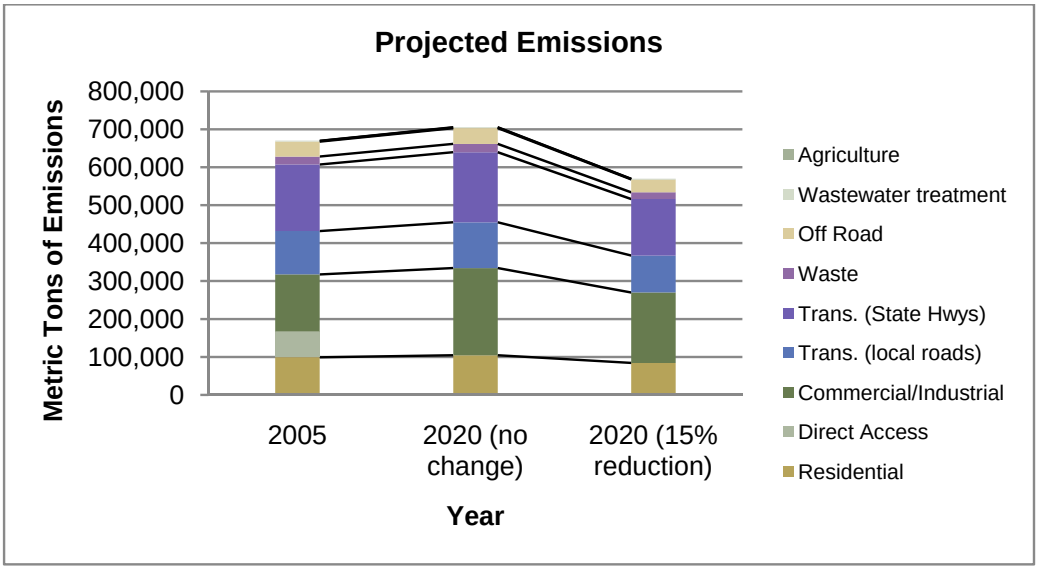
developed by Local Governments for Sustainability (ICLEI), which uses data on electricity and natural gas consumption, vehicle miles traveled (VMTs) and solid waste tonnage and converts it into carbon dioxide equivalents (CO_2e), using specific coefficients according to fuel or waste types. The CACP software determines emissions using specific factors (or coefficients) according to the type of fuel used. Converting all greenhouse gas emissions to CO_2e units allows for the consideration of different greenhouse gases in comparable terms. For example, methane is 21 times more powerful than carbon dioxide on a per-weight basis in its capacity to trap heat, so the software converts one metric ton of methane emissions to 21 metric tons of carbon dioxide equivalents.

Redwood City's community emissions inventory provides a baseline of emission levels against which future reductions can be measured. The analysis showed that the community of Redwood City emitted 669,737 metric tons of CO_2e in the baseline year of 2005. In Redwood City, the built environment sector, which includes residential, commercial and industrial buildings, used the most energy and emitted the most greenhouse gas emissions, accounting for approximately 47% of total emissions. Transportation on local roads and state highways accounts for approximately 43%, off road vehicles account for 6% and waste accounts for 3% percent.

The Redwood City community GHG inventory provides an understanding of where the highest percentages of emissions originate in Redwood City and enable the community and policy makers to consider and prioritize emission reduction strategies according to GHG emissions reduction potential, cost effectiveness and implementation feasibility.

Redwood City Greenhouse Gas Reduction Target

Redwood City's Community Climate Action Plan sets a target of reducing greenhouse gas emissions by 15% from today's level by the year 2020. Today's levels are defined as those levels identified using the best available technology for the baseline year of 2005. To achieve this target will require reducing emissions by 100,466 metric tons of CO_2 annually.



Alignment of Climate Protection Efforts

Two landmark pieces of legislation were enacted in 2005 to address climate change. In June of 2005, Governor Arnold Schwarzenegger signed California Executive Order S-3-05, which called for the State to reduce its greenhouse gas emissions and was followed by State Assembly Bill 32, the California Global Warming Solutions Act (California Health and Safety Code § 38500), which requires California to reduce its greenhouse gas emissions levels to 1990 levels by 2020. The AB 32 Climate Change Scoping Plan has defined this reduction goal as a 15% reduction in emissions from today's levels (2005) by 2020. The California Air Resources Board (CARB) is required by law to implement and enforce AB 32. State Bill 375, signed into law in September 2008 (California Public Resources Code §21155), clarifies that CARB is responsible for setting regional greenhouse gas targets. Per SB 375, transportation funding in California is contingent on meeting these targets.

Redwood City is aligning its goals and efforts with State legislation. The City also recognizes that no one jurisdiction, agency, company or organization's actions alone can effectively address the challenge of climate change. For this reason, the City actively seeks partners in the community who have the desire to work together to reduce the impacts of climate change in our local community.

Summary of Community Climate Action Plan Recommendations

Redwood City's Community Climate Action Plan recommendations are organized into five sections. These sections include: Building Community, Transportation and Land Use, Built Environment, Urban Ecology, and Waste and Recycling. Each section includes a summary of the issue, a set of recommended strategies and tools for monitoring goals and indicators.

Building Community

Focusing on building community while achieving climate protection is the basis upon which Redwood City's Community Climate Action Plan was created. Redwood City's commitment to community building, including a focus on education, engagement and empowerment are woven throughout the plan. Specific strategies in this section include:

- Empower Redwood City residents to take action to address climate change and reduce greenhouse gas emissions
- Engage Redwood City youth in community energy education efforts and prepare youth for emerging jobs in the green economy

Transportation and Land Use

Transportation is the single biggest source of greenhouse gas emissions in Redwood City. Facilitating the use of transportation alternatives is also the biggest challenge in implementing an effective Community Climate Action Plan. Reducing emissions from the transportation sector requires reducing dependence on the personal motor vehicles, using more fuel efficient and zero emission vehicles, supporting transit options, and encouraging "smart growth" or policies that promote efficient land use development. Specific strategies in this section include:

- Increase walking and bicycling as an alternative to driving
- Promote the use of fuel-efficient, electric, and biodiesel vehicles in the community
- Create conditions that decrease vehicle miles traveled and improve utilization of transit

Built Environment

The built environment provides an opportunity to stimulate job creation while helping residents and business to save money and conserve resources. Residents and business can implement strategies to reduce their energy use first. Next, they can deepen their reductions by considering renewable energy systems. Specific strategies in this section include:

- Promote energy efficiency in the community by using city facilities as role models and improve energy efficiency in the commercial building sector
- Make green building standard practice in the new construction and remodel market
- Improve energy efficiency in the residential built environment and stimulate demand for energy retrofits and renewable energy systems

Urban Ecology

Urban ecology includes improving the health of our natural environment in a way that enhances the quality of life of the local community. Participation in urban ecology efforts teaches principals of stewardship and builds understanding for the importance of resource conservation. It is difficult to quantify the carbon emission reductions associated with these projects, but it is believed that cultivating a stewardship ethic will lead to more sustainable practices in the community. In turn, as more people adopt sustainability practices in their everyday lives carbon emissions will be reduced. Specific strategies in this section include:

- Promote and encourage community involvement in urban ecology projects that preserve or expand natural spaces, create community and connect people to their natural environment
- Maintain a healthy urban forest and plant new and replacement trees
- Promote sustainable landscaping practices
- Promote a safe, healthy and local food system
- Connect children and youth to the natural world through environmental education

Waste and Recycling

Redwood City community members can have a major impact on the amount of garbage produced in the community by becoming aware of habits with respect to buying and using goods. Increasingly, consumers are producing less waste by practicing the “3 Rs” Reduce, Reuse, and Recycle. Consumers are buying products that contain less packaging, using reusable containers, participating in recycling programs, and buying products made from recycled materials. Specific strategies in this section include:

- Make the conservation of resources an integral part of waste management operations and increase recycling in the community

Building Community

Redwood City's core purpose is: **Build a Great Community Together**

This simple statement contains a great deal of meaning: it points to the need for engaging residents in an effort to create a true community; a community where there is a "sense of belonging," a place where there are relationships and trust among residents, and where people know their neighbors. A community is also a place where residents take both responsibility and accountability to partner with the City to achieve a mutual vision of a great community.

In a great community, people work successfully together to implement innovation solutions to complex problems - like climate change. Addressing climate change presents our community with an *extraordinary* challenge, but at the same time offers extraordinary opportunity to build community around this issue. History has shown time and again that when individuals and communities work together against a common peril amazing things can happen. Amazing things can happen in Redwood City. With a solid, demonstrable commitment to both civic engagement and sustainability, the City of Redwood City is poised to work together with the community to successfully implement the community's Climate Action Plan and meet the community's goals for reducing greenhouse gas emissions.

The City Council of Redwood strongly supports community-wide efforts aimed at reducing greenhouse gases and promoting sustainability, and the City continues to reach out to partner organizations and private funders to maximize resources that facilitate the community's participation in the climate protection movement. Reaching out includes engaging community members to work together with the City, to do their part to reduce emissions at home, in the work place and in the community. That's why, Redwood City's commitment to community building, including a focus on education, engagement and empowerment, is woven throughout this Community Climate Action Plan.

STRATEGIES

I. **Empower Redwood City residents to take action to address climate change and reduce greenhouse gas emissions**
II. **Engage Redwood City youth in community energy education efforts and prepare youth for emerging jobs in the green economy**

I. Empower Redwood City Residents to Take Action to Address Climate Change and Reduce Greenhouse Gas Emissions

Implement Redwood City Verde - It's Easy Being Green

Redwood City Verde - It's Easy Being Green - was introduced in Spring 2009. Redwood City Verde is a collection of programs, activities, tools, and ideas for reducing energy and water use in Redwood City homes, neighborhoods, businesses, and the entire City! It's all about sustainability and "going green."

Redwood City Verde is also a website and an educational awareness campaign. It was designed to bring programs that are offered by the City, or brought to the community in partnership with local organizations, under one unique community campaign. Highlighting climate action as part of one campaign lets residents know that when they engage in Redwood City Verde efforts they are part of a community movement for change. A movement that encompasses activities that reduce greenhouse gas emissions, that are good for the local environment and that build community.

Redwood City Verde currently includes the following elements:

- Acterra's Green@Home *free* residential energy audit program
- Fun "Cool the Earth" activities for students
- Green Business Certification program
- Redwood City's proven water conservation tools
- Classes, workshops, and special events

Implement the Green @ Home program

Green@Home, a program of Acterra, is an educational campaign that trains volunteers to conduct free home energy audits. The program is further discussed in the Built Environment section of the Community Climate Action Plan.

Promote implementation of Cool The Earth

Cool the Earth is a ready-to-run program that educates Kindergarten-8th grade students and their families about global warming and inspires them to take simple actions to reduce their carbon footprint. The program is successful because it's fun and empowering for kids – and their enthusiasm is contagious!

During the 2009-2010 school year, Cool The Earth was successfully launched at two elementary schools in Redwood City serving 730 students.

Implement the Green Business Program – *a partnership with Redwood City, San Mateo County and the Association of Bay Area Governments*

The Green Business Program is designed to assist, recognize, and promote local businesses that volunteer to operate in a more environmentally responsible way.

To be certified "Green," businesses have to be in compliance with all state and local regulations and meet the program's standards for conserving energy and water, preventing pollution, and minimizing waste.

Certified Green Businesses exhibit a real commitment to reducing waste and conserving resources, and they serve as a great example to other businesses in Redwood City. Participating businesses discover that it doesn't cost a lot of money to go green, and in fact they can actually save money when they reduce energy and water use. They also know that more and more customers in Redwood City will be looking to patronize green businesses, making "going green" a win-win for everyone.

Promote Redwood City Water Conservation Programs[3]

Redwood City's renowned Water Conservation Program offers a great variety of free water-saving tools and programs for residents and business. Residents and businesses can save water, by installing high efficiency toilets, monitoring and adjusting their sprinkler system, fixing leaking faucets, installing low water-use landscaping, and more. Redwood City's Water Conservation Program is designed to help customers take these important steps.

Encourage the ongoing identification and implementation of community programs designed to engage residents in taking action on climate change

Redwood City Verde will continue to be on the look-out for new tools and strategies to add to its community toolbox because the City knows that addressing complex community issues requires innovation and a willingness to try new ideas. New strategies may come in the form of partnerships with community based organizations, student-led events, business sector solutions or grassroots campaigns. Redwood City Verde welcomes ideas from the community as we work to address climate change and build a great community, together.

Community members can help implement this strategy by forming a broad-based community task force charged with identifying and acting on issues that encourage green lifestyle practices and energy conservation.

The City of Palo Alto and community groups created the Community Environmental Action Partnership (CEAP) as recommended by the Green Ribbon Task Force and the Climate Protection Plan. CEAP's mission is to bring the various segments of the community together to share knowledge, build mutual understanding, leverage resources, and create and implement innovative environmental solutions.

[3] General Plan NR-4

II. Engage Redwood City Youth in Community Energy Education Efforts and Prepare Youth for Emerging Jobs in the Green Economy

Redwood City recognizes that youth play a critical role in community climate action efforts. Redwood City also has a demonstrated commitment to engaging young people as community planners and decision makers. A recent community level strategic plan identified youth workforce development as a key youth development strategy. Environmental organizations who have been meeting in partnership with the City have emphasized the importance of preparing youth for green careers. This confluence of interest in positive youth development, climate change, and growth in the green jobs sector led Redwood City to identify the need to create a targeted youth workforce development strategy. A youth workforce strategy is particularly important in Redwood City where there is a large population of low income youth, few summer job opportunities to meet the demand for work, and a lack of Redwood City based job training and placement programs.

Implement Redwood City Verde Youth Ambassador Program

Redwood City will launch a summer "Redwood City Verde - Youth Ambassador Program" in 2010. The program will train and employ youth to conduct outreach to Redwood City residents on the importance of implementing green practices and reducing carbon emissions. Youth will receive education and training on leadership, environmental issues, energy efficiency, renewable energy systems, sustainable landscaping and agriculture, and water conservation. The program will include a variety of learning modules that combine hands-on training with work experience in the community. Work experience in the community will focus on the implementation of education campaigns and community improvement projects. In addition, Verde Ambassadors will be charged with maintaining and enhancing school and community gardens.

Examples of the types of efforts Verde Youth Ambassadors might participate in, include:

- Design marketing and communication materials
- Staff Redwood City Verde educational booth at City summer events – concert series, downtown family days, Fourth of July Parade, North Fair Oaks Festival, etc.
- Lead special energy education and water conservation activities for younger youth in partnership with the City's summer camp program
- Maintain and refurbish school and community gardens using sustainable landscaping practices
- Receive training on energy efficiency and water conservation
- Additional activities to be designed by the program design team

Implement environmentally focused enrichment classes during after school hours

Redwood City has been convening environmental education and youth-serving organizations over the past year with funding received from the Silicon Valley Community Foundation. During the 2009/2010 academic year, Redwood City is encouraging these organizations to propose and teach environmentally focused enrichment classes in after school programs. Classes will build student environmental literacy and provide students with tangible skills that they can apply to summer work experiences. Redwood City students who participate in these environmental classes or who participate in the REAL (Redwood Environmental Academy of Leadership) program at Redwood High School or the new Green and Clean Academy at Woodside High

School are examples of students who would be considered strong candidates for employment in the Redwood City Verde Youth Ambassador program.

Collaborate on the creation of Redwood City focused Green Jobs Corps

The Redwood City Verde Youth Ambassador program will lay the foundation for the creation of a Redwood City focused Green Job Corps. Creating a robust and sustainable Green Job Corps program will require time and extensive collaboration among multiple partners – community college, high school district, County Human Services Agency, Workforce Investment Board and other youth serving organizations. Redwood City has a rich history of collaboration and will take a leadership role in bringing partners together to pilot the Verde Ambassador program and assess the feasibility of scaling the program into a Redwood City focused Green Job Corp program.

Collaboration among partners will include working together to identify opportunities to link youth workforce development to in-school learning, out-of-school training programs and community based internships and job placements. Collaborative partners will work together to identify and leverage additional federal, state, municipal and private resources to strengthen and sustain green job opportunities for Redwood City young people well into the future.

Emissions Reduction Overview

To stay on track to achieve the community's emissions reduction target, the community should reduce total community emissions by 15% percent by 2020. This will require reducing emissions by 100,466 metric tons of CO_2e annually. This is equivalent to 1.7 annual metric tons (3,748 lbs.) per capita. This could be achieved through the adoption of behaviors that encourage energy savings and promote healthy living at home, in the workplace and in the community.

Progress Indicators

The Redwood City Community achieves a 15% reduction (110,466 metric tons) in greenhouse gas emissions by 2020.

- Community-scale greenhouse gas emissions are reduced by 8% by 2015

Engaged residents and community based organizations work together with local government to reduce emissions and implement sustainable practices in the community, at home, and at work.

- Grassroots community groups are in place and actively work with staff to implement the Community Climate Action Plan
- Community partnerships are identified among public and private organizations to support the implementation of Community Climate Action Plan strategies

Relevant and culturally appropriate education programs that teach respect for the environment and skills for sustainable living are more available in the community.

- Increase number of green certified businesses
- Increase participation in environmental programs (gardens, classes, clubs) on school campuses
- Increase in the number of environmental and/or sustainability focused community events and workshops

A ladder of green and white collar workforce trainings and placement programs are available and serving Redwood City youth.

- Availability and articulation of workforce development programs serving youth
- Availability and articulation of "clean and green" courses and training opportunities with workforce development programs
- Increase in youth summer internships and employment opportunities that have an environmental focus

Potential CO_2e Reductions - 15% by 2020

The following table provides a snapshot of potential CO_2e reductions associated with the implementation of strategies outlined in the Redwood City Community Climate Action Plan. These numbers are estimates and were generated using the Climate and Air Pollution Planning Assistant tool developed by ICLEI. The information presented is useful for understanding the emissions reduction potential of given strategies. The data can also assist in program goal setting and evaluating progress overtime. Calculations provided do not take overlapping effects into account nor do they incorporate all potential actions associated with each strategy.

As part of the City's New General Plan Environmental Impact Report (EIR) the City is conducting a deeper technical analysis of the Community Climate Action Plan and associated greenhouse gas emissions. The resulting technical analysis and supporting document will be suitable for use as the regulatory portion of a Comprehensive Climate Action Plan. This Community Climate Action Plan will be incorporated into the City's Comprehensive Climate Action Plan and will serve the critical aspect of the community call to action. The regulatory portion taken from the New General Plan EIR will ensure that Redwood City's final Comprehensive Climate Action Plan meets full compliance with AB 32 and SB 375 and will support future environmental review and regional planning efforts for the City.

BUILDING COMMUNITY	**Metric Tons of CO_2e Reduced**
Empower Redwood City residents to take action to reduce their personal carbon footprint	
Implement Redwood City Verde-It's Easy Being Green	
Green @ Home (1,000 homes)	1,000
Cool The Earth Campaign (500,000 lbs x 6 schools)	1,400
Green Business Program (200 new business participating)	2,138
Water conservation - aggressive implementation of water conservation efforts	2,408
Education campaigns focused on personal carbon reduction goal of 2,200lb (1 metric ton) per resident; reduction by 5% of residents	4,000
Engage Redwood City youth in community energy education efforts and prepare youth for emerging jobs in the green economy	
Implement Redwood City Youth Ambassador Program	NA
Total estimated emission reductions	**10,946**

Transportation and Land Use

Achieving a 15 percent reduction in greenhouse gas emissions by 2020 and an 80 percent reduction of emissions by 2050 will require that Redwood City's transportation sector look quite different than it does today. Walking, bicycling, and transit use will become a part of each resident's everyday life. As alternative modes of transportation become more available, traffic congestion will diminish and there will be fewer cars parked on neighborhood streets. There will be fewer multiple car households as residents take advantage of car share programs, and there will be a greater number of hybrid, electric, and biodiesel vehicles on the road. Changes in transportation patterns will be evidenced by denser, more compact neighborhoods that allow residents to take greater advantage of improved transit options and to meet their needs closer to home.

Redwood City's Transportation and Land Use strategy has been designed to progress toward this bold vision while reaching the community's greenhouse gas emission reduction goals. The City's Transportation and Land Use strategy incorporates a three-pronged approach. First: implement policies that reduce dependence on personal motor vehicles and encourage alternative modes of transportation, such as walking, bicycling, and transit. Second: utilize vehicles that release fewer greenhouse gases, such as fuel efficient hybrids and vehicles that run on alternative fuels. Third: encourage "smart growth" or policies that promote efficient land use development. Smart growth has many benefits. It reduces the need to travel long distances, facilitates transit and other non-automotive travel, increases the availability of market rate and affordable housing near transit hubs, employs existing infrastructure capacity, promotes social equity, helps protect natural assets, and maintains and reinforces existing communities.

STRATEGIES

I. **Increase walking and bicycling as an alternative to driving**
II. **Promote the use of fuel-efficient, electric, and biodiesel vehicles in the community**
III. **Create conditions that decrease vehicle miles traveled and improve utilization of transit**

I. Increase Walking and Bicycling as an Alternative to Driving[4]

Person and pedal power are clean sources of energy that do not produce greenhouse gas emissions. Having adequate infrastructure can be an incentive to encourage people to walk and cycle. Providing and promoting a convenient and safe pedestrian and bicycling infrastructure serves to reduce trips by motor vehicles, especially short trips – up to 5 miles - which constitute more than half of all driving.

Shifting trips from cars to walking and bicycling also reduces automobile traffic congestion. Because walking and biking are excellent modes of physical activity, an investment in walking and bike infrastructure is also an investment in public health. Redwood City can achieve its goal of increasing walking and bicycling by implementing the following "sustainability" focused programs outlined in the City's new General Plan[5].

Develop and implement "Complete Streets" Master Plan[6]

Redwood City created an ad-hoc "Community Working Group on Bicycle and Pedestrian Issues" in 2006. The purpose of the working group was to convene community members together with City staff to bring a renewed focus to local bicycle and pedestrian issues. The working group successfully raised the profile of these issues and identified a variety of areas for improvement, including opportunities for sidewalk and crosswalk upgrades, ways to connect bike lanes to San Mateo County-wide bike routes, and strategies for increasing safety education and promoting walking to school efforts.

Recognizing the importance of these issues and needs, the City has proposed the development of a formal Complete Streets Advisory Committee and the creation of a Complete Streets Master Plan. A final Complete Streets Master Plan will include identification of streets, pedestrian walks, bicycle boulevards, and bicycle routes that create a fully connected network throughout the City. The Master Plan will include connecting to neighboring communities and planned regional trails.

The Complete Streets Plan will likely incorporate infrastructure improvements including an increase in bike rack and bike storage facilities, increase in the number of pedestrian pathways, improved sidewalks and expanded safe bicycle routes. The Plan will also include the creation of education materials and signage to ensure safe use of these new facilities. It is anticipated that implementation of the Plan will significantly increase walking and biking in Redwood City which will include a corresponding decrease in vehicle use, particularly for short trips of less than 5 miles in length.

[4] General Plan BE-26
[5] New General Plan is still in draft form – has not yet gone to Council for adoption
[6] General Plan BE-45

Create an extensive system of walking paths, pedestrian connections, and continuous sidewalks that link urban neighborhoods and activity areas[7]

Creating an extensive system of trails in Redwood City will promote walking and bicycling, while providing safe and comfortable linkages to activity centers, parks, commercial centers, Downtown, schools, open spaces, and the San Francisco Bay. Urban trails increase a city's connectivity by providing shortcuts and direct access from and among neighborhoods and destinations. Nature trails allow access into open space and provide activities for hikers, bicyclists, and naturalists.

Almond Elementary School in Los Altos, California is piloting the Freiker program in the fall 2010. Kids do the walking or riding and the program's "Freikometer" does the counting. Trips to school add up throughout the school year and are redeemed for prizes at an end-of-year school party.

Implementation of this strategy will include the preparation of a Trails Master Plan that identifies existing and planned trails and trail heads, and will identify where new trails are needed. The Trails Master Plan will include an implementation plan to build and fund new trails. The Trail Master Plan will also establish cross sections, development guidelines, and standards for all walking, hiking, and bicycling paths and trails. As part of the Trail Master Plan, the City will work with the Association of Bay Governments and other local organizations to complete the Bay Trail, which will provide continuous connection through Redwood City and will facilitate a pedestrian and bicycle trail system along the Hetch Hetchy.

Work with schools and community organizations to create a Safe Routes to Schools program that encourages students to walk and bicycle to and from schools and parks[8]

Safe Routes to School[9] programs enable community leaders, schools (public and private) and parents to improve safety and encourage more children to walk and bicycle to school. In the process, programs are working to reduce traffic congestion and improve health and the environment, making communities more livable for everyone.

Safe Routes to Schools programs examine conditions around schools and conduct projects and activities that work to improve safety and reduce traffic and air pollution in the vicinity of schools. As a result, these programs help make bicycling and walking to school safer and more appealing transportation choices thus encouraging a healthy and active lifestyle from an early age.

II Promote the Use of Fuel Efficient, Electric, and Biodiesel Vehicles in the Community

An average household with two medium-sized sedans emits more than 20,000 pounds of carbon dioxide (CO_2e) a year. That's 10 tons of global warming pollution. Sport utility vehicles (SUVs) tend to emit even more greenhouse gases than smaller cars with as much as 40 percent more exhaust. On the bright side, the vehicles consumers choose and the way they drive them presents the greatest opportunity individual drivers have to trim their global warming emissions.

[7] General Plan QOL-5
[8] General Plan QOL-19
[9] Stanford Urban Studies students have created a Safe Routes to School Toolkit to support community action. Residents can access the toolkit by contacting the City Manager's Office

Consumers can begin reducing greenhouse gas emissions immediately by purchasing fuel-efficient, electric, and biodiesel vehicles. Cars with better gas mileage provide a triple benefit: they protect the climate, they cut America's oil dependency and they save money at the pump.

Market trends point to more fuel efficient vehicles becoming available as early as 2010. Fuel efficient vehicles including all electric, plug-in hybrids, and vehicles that can use lower carbon content fuels such as biodiesel derived from recycled vegetable oils, will offer consumers new efficiency options. As these new vehicle options become available Redwood City can promote and support their adoption for use in the community by providing infrastructure for recharging batteries and purchasing biofuels.

Lead by Example – promote fuel-efficient and alternative fuel vehicles in the community by using the City's fleet as an example

Redwood City has been a leader in environmental responsibility having taken early action to "green" the City's fleet. Examples include:

- 83% of all City sedans (excluding police department vehicles) are hybrids
- Parks and Police Departments have three full electric vehicles
- A total of 34 heavy duty diesel vehicles are scheduled to have a Diesel Particulate Filter (DPF) installed or be replaced with cleaner diesel engine by 2011
- The City fleet has been using B20 (20% biofuel) diesel since 2006

As the Community Climate Action Plan is implemented, it will be important for the City to continue to convert its fleet to more fuel efficient vehicles on a replacement basis. The City can then capitalize on its own vehicle efficiency efforts to promote and encourage fuel efficiency in the community, in both the commercial and residential sectors.

Plan for the creation of recharging stations for plug-in hybrid and electric vehicles[10]

Several major car manufacturers have indicated that by 2010 they will be selling electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs) in the United States. The City can encourage their use by providing residents and visitors with the infrastructure needed to recharge their EVs and PHEVs in Redwood City. One of the simplest ways to do this is to construct vehicle recharging stations in public parking facilities, encourage larger local businesses to install recharging stations, and encourage contractors and developers to incorporate recharging facilities into multi-unit housing projects.

Promote the local biodiesel market by encouraging the location of a biodiesel fueling station

Biodiesel is made from a renewable resource. It produces fewer greenhouse gas emissions and particulates compared to conventional diesel. The City and other community agencies and groups can work together to foster the growing demand for bio-diesel in the region. This could include encouraging the creation of a community bio-diesel co-op or the development of a biodiesel fueling station. These activities could be enhanced by incorporating education on this fuel alternative and the role it can play in reducing greenhouse gas emissions locally.

[10] General Plan BE-158

Consider offering preferential or reduced cost parking for fuel efficient, electric, and alternative fuel vehicles

Offering preferential or reduced cost parking for fuel efficient, electric and alternative fuel vehicles can promote the purchase of more fuel-efficient cars and thus reduce emissions. These parking spaces can be incorporated in existing and new parking lots, structures and plans throughout Redwood City's downtown and commercial areas.

Encourage drivers to adopt climate-friendly driving habits

All drivers can adopt climate-friendly driving habits that improve their vehicles' fuel efficiency and reduce driving costs. The community can influence the adoption of these climate friendly behaviors by residents.

What every driver can do!

- Maintain their vehicle – for optimum efficiency, change filters and oil and maintain tire pressure (keeping tires properly inflated can reduce gasoline consumption by 6%)
- Test vehicle for emissions – a small adjustment can make a huge difference in how much pollution a vehicle emits
- Reduce driving speed – driving slower and smoother can significantly reduce fuel consumption
- Reduce mileage – drive less, combine trips, take alternative transportation and carpool
- Consider fuel efficiency when purchasing a new or used car consider fuel efficiency

Partner with community organizations to create and implement marketing campaigns that encourage climate friendly driving habits and alternative modes of transportation. Consider emerging transportation alternatives such as a car sharing program and other options

Redwood City can encourage partnerships with and among transportation agencies, business and community groups to identify innovation solutions to increase alternatives to driving single occupancy vehicles.

The Menlo Park Green Ribbon Citizen's Committee developed the Drive Less Challenge. Launched on Earth Day 2009, the Drive Less Challenge is a friendly social challenge to reduce driving alone. Each day, residents logged their trips to see what they could do to take alternatives to driving alone. At the end of the weeklong challenge, participants earned recognition and prizes, donated by local businesses, for their achievements.

III Create Conditions that Reduce Vehicle Miles Traveled and Improve Utilization of Transit [11]

Transit Oriented Development

Land use planning plays a vital role in reducing community vehicle miles traveled (VMT). It is the means by which Redwood City can encourage new developments toward locations that are near transit and have retail, jobs and other services within walking distance. This type of development is called Transit Oriented Development and it is recognized as one of the most effective means for reducing vehicle miles traveled and associated greenhouse gas emissions. Redwood City's new General Plan and Downtown Plan[12] focus new development toward transit corridors and the downtown.

Looking ahead the City can:

- Where possible and appropriate, add housing (including affordable housing) along Redwood City's primary transportation corridors and where best served by jobs, retail options, and other essential services
- Where possible and appropriate, add essential retail services along Redwood City's main transit and economic corridors
- Consider reducing parking requirements, adjusting parking prices and offering other amenities that facilitate and promote transit oriented development

Establish an area wide Transportation Demand Program[13]

Transportation Demand Management (TDM) refers to a set of comprehensive strategies to reduce vehicle trips and vehicle miles traveled (VMT) by promoting alternatives such as transit, carpooling, bicycling, walking, and telecommuting. Many of the features that are incorporated into the Circulation Section of the Built Environment Element of the City's General Plan are part of the City's TDM strategy, including:

- A street typology system that assigns priority to alternate modes of travel, including the concept of complete streets
- Pedestrian and bicycle facilities, including Safe Routes to Schools and safe routes to transit
- Expanded and enhanced public transit service, including exclusive bus lanes
- Traffic calming measures
- Compact land use pattern that reduces trip length and allows for park once and walk destinations.

Establishing an area wide Transportation Demand program may include free shuttle service, ridesharing, preferential carpool parking, flexible work schedules, parking pricing and other measures. This is another area where the City can lead by example by updating and enhancing the existing TDM program for Redwood City employees. Additionally, the City could establish a procedure that educates, reviews and monitors private party TDM programs to encourage their operation and effectiveness.

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[11] General Plan BE-27
[12] Sustainability and The Downtown Precise Plan
http://www.redwoodcity.org/cds/redevelopment/downtown/tomorrow/Sustainability%20and%20the%20Downtown%20Redwood%20City%20Precise%20Plan.pdf
[13] General Plan BE-89

As part of the program, the City could update its transportation impact fee program to include a reduction in fees for new developments that demonstrate effective TDM strategies. Alternatively, the City could explore the feasibility of providing reimbursements after monitoring shows the effectiveness of TDM strategies.

a. Use the establishment of an area Transportation Demand Program as an opportunity to partner with public, commercial and community based organizations to promote and market walking, biking, carpooling/sharing, and public transportation as an alternative to driving.

b. Use the establishment of an area Transportation Demand Program as an opportunity to assess the feasibility of expanding neighborhood shuttle service community wide.

Emissions Reduction Overview

To stay on track to achieve the community's emissions reduction target, the community should reduce the emissions that result from transportation by 15% percent by 2020. This will require reducing emissions from the transportation sector from an estimated 289,737 to 246,277 metric tons of CO_2e, for a total reduction of 43,460 metric tons.

Progress Indicators

Biking and walking are easier and a part of everyday life. Biking and walking are the preferred modes of transportation for daily trips that are a distance of 5 miles, or less, in length.

- Improved bicycling and walking infrastructure
- Increase in the number of students walking and biking to school
- Increase in the number of daily trips switching from driving to walking and bicycling

Transit is the preferred method of commuting to work for commute trips that are a distance of 15 miles or more in length.

- An effective Transit Demand Management program is in place
- Increase in transit alternatives – buses, trains, shuttles, other
- Increase daily public transportation ridership

Affordable fuel efficient and zero emissions vehicles are common place and are the preferred option for consumers.

- Increase in the availability of technology to support fuel efficient and zero emission alternatives (recharging stations, biofuel stations, etc.)
- Increase in the availability of fuel efficient and zero emissions vehicles in the community
- Increase in the number of zero emission and other advanced ultra-low emission light duty vehicles to the City's municipal fleet

Housing is located within walking distance of transit, retail, jobs and other services.

- 2,500 housing units are built within Redwood City's downtown as identified in the Downtown Precise Plan

Potential CO_2e Reductions – 15% by 2020

The following table provides a snapshot of potential CO_2e reductions associated with the implementation of strategies outlined in the Redwood City Community Climate Action Plan. These numbers are estimates and were generated using the Climate and Air Pollution Planning Assistant tool developed by ICLEI. The information presented is useful for understanding the emissions reduction potential of given strategies. The data can also assist in program goal setting and evaluating progress overtime. Calculations provided do not take overlapping effects into account nor do they incorporate all potential actions associated with each strategy.

As part of the City's New General Plan Environmental Impact Report (EIR) the City is conducting a deeper technical analysis of the Community Climate Action Plan and associated greenhouse gas emissions. The resulting technical analysis and supporting document will be suitable for use as the regulatory portion of a Comprehensive Climate Action Plan. This Community Climate Action Plan will be incorporated into the City's Comprehensive Climate Action Plan and will serve the critical aspect of the community call to action. The regulatory portion taken from the New General Plan EIR will ensure that Redwood City's final Comprehensive Climate Action Plan meets full compliance with AB 32 and SB 375 and will support future environmental review and regional planning efforts for the City.

TRANSPORTATION	**Metric Tons of CO_2e Reduced**
Increase walking and bicycling as an alternative to driving	
Safe Routes to Schools programming covering 8,000 students	541
Bicycling - 2500 weekly trips switching from cars to bikes - av. Length of trip 10 miles; based on creation of 5 miles of bike boulevard type improvements	626
Walking - 750 weekly trips - 3 miles	56
Education Campaign- 15,000 households targeted - 4% trip reduction	5,978
Promote the purchase of fuel efficient, electric and biodiesel in the community	
Increase Hybrids used in the community - ~10% of households or 4,000 vehicles	13,158
EV charging stations - 30 stations	36
Create conditions that decrease vehicle miles traveled and improve utilization of transit	
Focus on Transit Oriented Development – 2,500 units per downtown plan	14,700
Increase public transit usage	
25% increase in train usage over 2007 levels (1932) - 500 new daily riders	449
15% increase in average daily bus ridership over 2008 (4700) - 700 new daily riders	389
Expand shuttle services to businesses and neighborhoods throughout Redwood City - 75 new daily riders, average length of route. 10 miles	265
Total estimated transportation emissions reductions	**36,198**
Transportation emissions reduction goal	43,643
Difference between estimated reductions and goal	**-7,262**

BUILT ENVIRONMENT

Redwood City's Built Environment strategy has been designed to meet the community's greenhouse gas emission reduction goals and stimulate job growth through efforts that make energy efficiency and water conservation standard practice in new and existing buildings in the community. To achieve dual goals of emission reductions and job creation, Redwood City will implement an aggressive community energy education program that demonstrates the City's commitment to energy efficiency, incorporates free home energy audits and water conservation programs, and provides financing mechanisms for building retrofits.

Electricity and natural gas consumption in Redwood City homes, businesses, industries and public institutions (including City government) results in approximately 317,496 metric tons CO_2e ($MTCO_2e$) per year emitted into the atmosphere – about 47 percent of Redwood City's total GHG emissions. The energy consumed in Redwood City homes contributes about 31% of total emissions from building energy use while energy consumption by the commercial and industrial sectors, contribute the remaining 69%. Natural gas consumption, mostly for space and water heating, is by far the largest source of emissions related to building energy use.

To achieve a 15 percent reduction in greenhouse gas emissions by 2020 and an 80 percent reduction of emissions by 2050, the community's task is to significantly reduce energy waste in homes, businesses and industry, and "green" the energy supply[14] that the community consumes. Accomplishing this will require substantial public and private investment in energy efficiency. These initial investments can also result in significant cost savings and job opportunities over time. In addition to energy savings, improving efficiency in the built environment contributes to improved air quality and comfort.

STRATEGIES

I. **Promote energy efficiency in the community by using City facilities as role models and improve energy efficiency in the commercial building sector**
II. **Make green building standard practice in the new construction and remodel market**
III. **Improve energy efficiency in the residential built environment and stimulate demand for energy retrofits and renewable energy systems**

[14] General Plan BE-157

I. Promote Energy Efficiency in the Community by Using City Facilities as Role Models

Redwood City has been a leader in environmental responsibility and has been involved in a number of specific actions to reduce its energy consumption and greenhouse gas emissions. Specific actions include: retrofitting traffic lights with LEDs, converting incandescent light fixtures to fluorescent, replacing machinery with more energy-efficient equipment, introducing substantial water conservation programs and an award winning recycled water project, replacing fleet vehicles with hybrid models, and utilizing the most efficient fuel options available. While greenhouse gas emissions from energy and water use in municipal buildings account for only about 1.4% of Redwood City's total community-wide emissions, the City's leadership role extends well beyond the magnitude of greenhouse gases reduced from City operations. That's why it is critical that the City continue to lead by example through specific actions aimed at improving the energy efficiency of City facilities. It is also critical that the City promote its own actions to galvanize conservation efforts community wide.

Redwood City will continue to maximize its efforts through the following actions:

Establish systems to benchmark, identify, track and fund energy performance of public facilities

As a first step, the City will use ENERGY STAR's Portfolio Manager to benchmark and track City owned building performance and encourage large commercial building owners to follow the City's lead. ENERGY STAR Portfolio Manager is a free, web-based energy management tool that enables businesses to track and assess energy and water consumption across a building portfolio. Portfolio Manager can also help the City set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive Environmental Protection Agency (EPA) recognition for superior energy performance.

Next, the City will create a Municipal Energy Fund as a self-sustaining source of funds for investment in energy-efficient retrofits of City facilities. A Municipal Energy Fund is a sum of money dedicated to energy efficiency, clean energy, or other energy reduction measures. Funds will be used to seed qualifying municipal energy efficiency projects. Once identified projects are implemented, energy and cost savings will be monitored for a pre- and post- implementation comparison. Energy efficiency cost savings will then be reinvested into the fund. This process enables the Fund to become a self-sustaining source of funding, creating a cycle whereby monies are constantly replenished by the reinvestment of energy efficiency cost savings.

A Municipal Energy Fund will help Redwood City

- Facilitate energy management, energy retrofits and renewable energy systems of City facilities
- Demonstrate the City's commitment to environmental stewardship and/or energy conservation
- Internalize energy conservation into existing operations
- Promote the implementation of innovative environmental projects
- Reduce operating expenses by installing more energy efficient measures

Increase energy efficiency and renewable energy use in public facilities

Of the total emissions accounted for in the City's 2005 Government Operations Greenhouse Gas Emissions Inventory, emissions from City buildings and facilities were the largest accounting for 27% of emissions. Focusing on buildings and facilities will therefore have the biggest impact on the reduction of emissions from government operations. To achieve its reduction goals, Redwood City will build off its energy management and investment strategies to begin the implementation of projects that increase energy efficiency and renewable energy use in public facilities.

Capitalize on Redwood City's energy conservation efforts to encourage energy efficiency in the commercial building sector

Redwood City will promote its own efforts to inspire energy and water conservation in the commercial building sector. Redwood City is a sponsor of the San Mateo County Green Business Certification program. To become green certified, local businesses are required to have an energy and water conservation audit. Redwood City – City Hall has successfully completed Green Business Certification as a leading example of what can be accomplished through participation in the program. Redwood City will continue to promote the Green Business Certification program to local businesses and will look to having additional City owned facilities green certified. Redwood City will also continue to partner with our local utility, Pacific Gas and Electric (PG&E) to promote rate payer rebates and incentives within the commercial building sector.

II. Make Green Building Standard Practice in the New Construction and Remodel Market

Green building is the practice of creating structures that are environmentally responsible, resource efficient and provide maximum benefit to human health. Green construction methods can be integrated into buildings at any stage, from design and construction, to renovation and deconstruction. However, the most significant benefits can be obtained if the design and construction team takes an integrated approach from the earliest stages of a building project.

Potential benefits of green building can include:

- Improved indoor air quality
- Reduced operating costs
- Resource conservation and reduction in waste
- Minimized strain on local infrastructure
- More livable communities

Support for green building is gaining momentum and there is increasing evidence that green buildings have more value than conventional buildings.

Implement Green Building Ordinance[15]

Redwood City is implementing its Green Building Ordinance adopted by Council in the fall of 2009. The Green Building Ordinance incorporates building standards that exceed State Title 24 building construction standards and Energy Star conservation standards into future public and

[15] General Plan BE-167

private development and major renovation projects. Through the green building ordinance, the City will also encourage salvaging and recycling material from building demolition and the use of recycled building materials in new construction.

Implementation of the Green Building Ordinance will include the following level of certification and thresholds:

- Build it Green, 50 "Green Points" for all residential project types with a threshold of 1,000 square foot additions, new homes or any new multi-family development.
- LEED[16] Certification Non-Residential Projects (including Hotels and Motels), with a threshold for non-residential is over 3,000 square feet.

To support Green Building implementation, the City will assess and provide ongoing training for zoning and building permit staff to enable them to be knowledgeable about the latest green building techniques. It is recommended that training be updated regularly to reflect changes in building technologies and techniques.

Additional actions include:

a. Increase green building throughout the region by sharing best practices with other area Cities through such entities as Joint Venture Silicon Valley and the Green Building Public Agency Council

b. Showcase innovative green building techniques in the community

c. Host water conservation and green building educational workshops in the community

d. Catalog local green building resources and post on the City's website

[16] Leadership in Energy and Environmental Design

III. Improve Energy Efficiency in the Residential Built Environment and Stimulate Demand for Energy Retrofits and Renewable Energy Systems

Electricity and natural gas consumption in Redwood City homes, businesses, industries and public institutions (including City government) results in approximately 317,496 metric tons CO_2e ($MTCO_2e$) per year emitted into the atmosphere – about 47 percent of Redwood City's total GHG emissions. The energy consumed in Redwood City homes contributes about 31% of total emissions from building energy. Natural gas consumption, mostly for space and water heating, is by far the largest source of emissions related to building energy use. Given this, achieving significant reductions in residential sector GHG emissions requires substantial public and private investment in energy efficiency. These initial investments will result in significant cost savings, will encourage investment in the local economy and will create job opportunities over time.

To spur CO_2e reductions and stimulate job creation, the City of Redwood City will implement a community energy education campaign. The Campaign will offer residents with information and programs to empower households to make informed choices that significantly reduce their energy consumption. Program strategies include free home energy audits, referrals to commercial home energy retrofit providers, and access to financing mechanisms for energy efficiency upgrades. For these efforts to be effective, residents must make use of these opportunities to bring about behavior change in the community.

Implement Acterra's Green @ Home –residential energy efficiency program

Green@Home is a program of Acterra, a local non-profit organization. Green@Home is a proven home energy efficiency program that addresses climate change by reducing residential energy use and thus CO_2e emissions. Utilizing social marketing approaches, Green@Home leverages the power of individuals to create a tipping point that shifts residential energy consumption habits.

The program uses trained volunteers recruited from Redwood City neighborhoods and other nearby communities to perform simple energy-saving retrofits and provide free home energy audits to Redwood City residents. The program offers its services to renters and homeowners free of charge. During scheduled household visits, known as HouseCalls, volunteers look for ways that residents can save on their utility bills and install energy saving devices. Residents work with the volunteers to create a personalized Energy Savings Plan that lists the upgrades that have been made and makes specific energy-saving suggestions that the residents agree to implement on their own. To further encourage follow through, Green@Home volunteers follow-up with residents two months after the HouseCall to check on their progress.

Green@Home is also a community awareness program. Social scientists have found that people are more likely to adopt environmentally positive behaviors when they perceive that others are doing so, too. To achieve this, Green@Home distributes colorful yard signs that say, "We're saving energy – and money, too!" to all HouseCall recipients. The sign invites others to participate and, is designed to create an "energy-saving bandwagon" effect among residents.

Green@Home staff will also offer do-it-yourself (DIY) workshops for the Redwood City community. DIY workshops present the basic information provided to Green@Home trainees, and also provide training on weather-stripping and appliance maintenance techniques that improve efficiency.

Offer Residential Energy Efficiency Programs

Green@Home is an important first step toward improved energy efficiency. For homeowners to reach deep reductions in their CO_2e emissions, it will require further habit changes and in many cases home energy retrofits and installation of water conservation measures in their landscaping.

> Morgan Hill residents can join a Carbon Diet Club for 30 days where participants learn how to reduce household greenhouse gas emissions. Participants receive numerous tools, such as a workbook to track progress, reusable shopping bags, shower timers, a free home energy analysis and much more. Clubs meet face-to-face three times during the participation month to discuss action items and to help each team member reach their reduction targets.

Mobilize Neighborhood Teams

Building off Redwood City's very successful Neighborhood Liaison program and participation in the Green@Home program, the City will organize neighborhood Eco Teams. Neighborhood Eco Teams will be comprised of 5-8 households. Armed with a tool kit of home energy saving devices, Eco Teams, will gather a minimum of three times in the course of a given timeframe to motivate each other to make deep habit changes that result in significant household energy reduction. They will also be tasked with identifying and carrying out neighborhood based energy education events and activities to further educational efforts at the grassroots level.

Make Referrals to Commercial Building Performance Companies

Redwood City will work to provide non-biased referral information to commercial building performance and energy retrofit companies for residents. Building performance companies provide a range of diagnostic and building contract services designed to significantly reduce energy consumption and improve indoor air quality. Services can include sealing a building's envelop, improving insulation, optimizing heating and cooling systems, and installing renewable energy systems. Going beyond building performance, households will also be encouraged to consider energy and water conservation savings in their landscaping.

Demystify Solar and Renewable Energy Systems

Before installing a photovoltaic or renewable energy system, it is recommended that property owners first optimize their home's energy efficiency. Redwood City will offer workshops for homeowners to help them better understand the importance of optimization, types of renewable energy systems available on the market, what to consider when selecting a system, what to look for in an installer, and available financing and incentives for installation.

Promote the use of Renewable Energy Systems

The energy efficiency measures outlined above are critical in Redwood City's efforts to meet its greenhouse gas reduction goals. It is also important that Redwood City residents take action to "green" the energy we consume through increased utilization of renewable energy sources. Redwood City's well-known sunny climate makes it a particularly good location for use of solar energy.

Implementation of the City's Community Climate Action Plan will include providing education to the community on the use of renewable energy and identification of opportunities where feasible to develop small-scale, distributed energy (e.g. solar power, wind, cogeneration, biomass) to reduce the amount of electricity drawn from the regional power grid. A focus on renewable energy will help reduce greenhouse gas emissions while providing Redwood City with a greater degree of energy self-sufficiency.

Recognize Households for Their Energy Saving Accomplishments

Recognition for a job well done inspires individuals and groups to take bolder steps to reduce their energy consumption. Recognition is also an effective marketing tool that builds momentum and community wide involvement. Redwood City will recognize residents with awards presented at City Council meetings, periodic newsletter, and/or newspaper articles highlighting accomplishments and with prize awards.

Offer Energy-Saving Resources and Financing Mechanisms

Consumer education and recognition are critical to involving a broad cross-section of the community in making sound energy conservation decisions. Another identified barrier to action is access to financing, particularly for large scale home energy retrofits and installation of renewable energy and photovoltaic systems. As part of our community wide energy conservation efforts, the City will identify and offer, a suite of energy-saving resources and financing mechanisms to assist property owners to implement their household energy conservation plans. These include:

- Support collaboration among providers of home energy efficiency programs in the community. Identify and articulate a continuum of services based on income eligibility
- Support joint marketing efforts of existing energy conservation and weatherization services currently offered to low income community members as part of the City's community wide energy education campaign
- Partner with Pacific Gas and Electric (PG&E) and San Mateo County Energy Watch to inform residents about rate payer rebates and energy conservation programs
- Partner with local businesses to offer coupons to Green@Home participants to purchase energy efficiency appliances, weatherization materials, rain catchment systems, etc.

Until recently, there were two main hurdles to solar and energy efficiency installation that State and federal subsidies did not address: high up-front costs, and the possibility that those costs would not be recovered if the property were sold. The passage of AB 811 in July 2008 eliminated these barriers by utilizing the same energy financing mechanism used in Berkeley, California in which the City serves as the financing agent through a low-interest loan program. Individual property owners (residential and small businesses) contract directly with qualified private installers and contractors for energy efficiency and solar projects. The City provides funding for the project by partnering with a utility or from a bond or loan fund that it repays through assessments on participating property owners' annual property tax bill over a 20-year period. Under this plan, there is little or no up-front cost to the property owner, and if the property owner sells the property prior to the end of the repayment period, the new owner takes over the assessment payments which continue on the property's annual tax bill.

Redwood City is positioning itself to be take advantage of county-wide or regional opportunities to develop and implement an AB 811 type financing district. Participation in this type of effort will allow Redwood City to offer property owners financing for energy efficiency retrofits, solar photovoltaic and renewable energy systems. Partnering on a regional program significantly reduces the costs associated with the development and implementation of this type of program.

Public education, combined with financing will provide local residents and businesses with the tools they need to weatherize and retrofit their buildings for improved energy efficiency. It will be the responsibility of the community to take advantage of these programs and opportunities. It is recognized that improving energy efficiency in the built environment requires an investment in the local economy. These investments will also generate local jobs as the demand for home energy services increases.

Emissions Reduction Overview

To stay on track to achieve the community's emissions reduction target, the community should reduce the emissions that result from the built environment by 15% percent by 2020. This will require reducing emissions from the built environment sector from an estimated 317,496 – 269,871 metric tons of CO_2e, for a total reduction of 47,625 metric tons. More specifically this is a reduction of 14,872 metric tons from residential buildings and 32,752 metric tons from commercial and industrial facilities.

Progress Indicators

Redwood City facilities role model energy efficiency in the built environment

- Municipal facilities are benchmarked using Portfolio Manager
- Municipal Energy Fund established
- Number and square footage of facilities energy audited and retrofitted
- Municipal facilities energy efficiency increases
- Increase in the number of renewable energy systems providing energy to municipal facilities

Commercial facilities energy efficiency improves

- Increase in the number and square footage of facilities energy audited and retrofitted
- Increase in the number of commercial renewable energy systems

Green Building is standard practice in the new construction and remodel market

- Green Building Ordinance is implemented
- Increase in the number and square footage of residential Build It Green certified buildings
- Increase in the number and square footage of commercial LEED certified buildings

Residential homes in Redwood City achieve a high standard of energy efficiency

- Increase demand for residential energy retrofits and weatherization programs
- Increase in the number of residential renewable energy systems
- Increased energy efficiency in the residential built environment

Potential CO_2e Reductions - 15% by 2020

The following table provides a snapshot of potential CO_2e reductions associated with the implementation of strategies outlined in the Redwood City Community Climate Action Plan. These numbers are estimates and were generated using the Climate and Air Pollution Planning Assistant tool developed by ICLEI. The information presented is useful for understanding the emissions reduction potential of given strategies. The data can also assist in program goal setting and evaluating progress overtime. Calculations provided do not take overlapping effects into account nor do they incorporate all potential actions associated with each strategy.

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BUILT ENVIRONMENT	**Metric Tons of CO_2e Reduced**
Promote energy efficiency in the community by using city facilities as role models	
12,000,000 square feet of commercial space retrofitted	16,385
Make green building standard practice in the new construction and remodel market	
4,000,000 square feet of new or remodeled construction	14,833
Improve energy efficiency in the residential built environment and stimulate household demand for energy retrofits and upgrades	
4,000 homes retrofitted through loans or other means	4,810
1,000 homes weatherized	380
1,500 kW of solar installed	1,096
Conversion of Direct Access energy accounts to more renewable energy sources	12,000
Total estimated built environment emissions reductions	**49,504**
Built Environment emissions reduction goal	47,625
Difference between estimated reductions and goal	**1,879**

URBAN ECOLOGY

In urban areas where the majority of land is given over to pavement, buildings, or other kinds of development, ecologically functioning land is a unique and valuable asset with widespread positive impacts. Creeks, wetlands, parks, trees, gardens, and preserved open space can serve as interconnecting islands of bio-diversity, offering habitat to plants and animals, and enjoyment to people.

Urban ecology projects – such as tree plantings and community gardens – preserve neighborhood green spaces and strengthen a sense of community, while cultivating connections between residents and their natural environment. Community and backyard gardens are opportunities to not only provide a supplemental low-cost food source, but also to increase awareness of ecology, natural systems, concepts of reuse and recycling, and health. Simply being close to trees and green spaces has been shown to decrease levels of stress, blood pressure, and muscle tension, and increase overall health and well-being.

Ecological areas offer a variety of other benefits. For example, trees and landscaping absorb stormwater, reduce “heat islands” (microclimates with higher temperatures than surrounding areas caused by heat-absorbing surfaces like asphalt and concrete), remove air pollutants, filter polluted water, sequester carbon dioxide, and provide animal habitat. Wetlands can help protect urban areas from flooding and provide critical wildlife habitat, as well as opportunities for low-intensity recreation.

STRATEGIES

I. **Promote and encourage community involvement in urban ecology projects that preserve or expand natural spaces, create community and connect people to their natural environment**
II. **Maintain a healthy urban forest and plant new and replacement trees**
III. **Promote sustainable landscaping practices**
IV. **Promote a safe, healthy and local food system**
V. **Connect children and youth to the natural world through environmental education**

I. Promote and encourage community involvement in urban ecology projects that preserve or expand natural spaces, create community and connect people to their natural environment[17]

Redwood City residents value open space and natural habitat areas. The City and its sphere of influence contain extensive natural habitats and open spaces, particularly near the San Francisco Bay but also in the nearby foothills of the Santa Cruz Mountains. These areas are rich animal and plant habitat, accommodating a diversity of wildlife including birds, mammals, insects, fish, and other marine animals, as well as a variety of species of native plants. Redwood City has participated in efforts to preserve expansive areas of the fragile wetlands ecosystem, an example being the City's participation on the Bair Island Task Force. The upland hillsides, including Stulsaft Park and Edgewood County Park and Natural Preserve, offer extensive open space areas suitable for low-intensity recreational use and are home to a great variety of plant species and wildlife.

Redwood City can work collaboratively with volunteer groups, non-profit organizations, and community groups to maintain and restore creek ecology, plant trees, preserve neighborhood green spaces, and restore/maintain wetlands. These efforts can serve to protect sensitive ecological areas while building community and connecting residents to their natural environment, as well as to each other.

An example of such a collaborative effort in Redwood City is the restoration of Inner Bair Island, part of the Don Edwards San Francisco Bay National Wildlife Refuge. The U. S. Fish and Wildlife Service (FWS) is undertaking a 1,400-acre restoration project to return it to its natural condition as tidal wetlands – a recovery from its historic human use as grazing lands and salt evaporation ponds. The restoration of this ecological treasure will help renew natural vegetation, protect critical wildlife habitat and endangered species, reduce mosquito breeding, and offer revitalized public access and renewed opportunities for environmental education.

The entire project represents a model which other entities throughout the Bay Area might use for similar cooperative efforts. An important part of that model is a unique partnership between a group of agencies and non-profit organizations to provide mutual support for the ongoing efforts for restoration of Bair Island. This group includes the FWS, the City of Redwood City, the Bay Planning Coalition, the Port of Redwood City, Save the Bay, South Bayside Systems Authority, the U.S. Army Corps of Engineers, and others.

Another example of a community collaborative habitat restoration project is the Stulsaft branch of Redwood Creek in Stulsaft Park. Kennedy Middle School's science department, non-profit organization Acterra, and the City's Parks and Recreation Department work together on a creek restoration and maintenance program that ties to 7th grade science standards. Teachers take students on class field trips to the creek at the park, which is within five minutes walking distance from the school. Students visit the creek site several times per semester to familiarize themselves with the creek surroundings, identify plant species and participate in creek restoration. They apply in-school learning to hands-on work, and in the process, help better their community.

[17] General Plan NR-29; also Goals NR-5, 6 & 8

Using these models of community collaborative efforts, the City can continue to partner with public, non-profit organizations and businesses to preserve and restore natural spaces as ecologically productive areas and to sequester carbon. Additionally, restoration efforts can provide education and community building opportunities by engaging residents in the design and restoration process.

I. Maintain a Healthy Urban Forest and Plant Trees

Implement Tree Master Plan[18]

The City can adopt and implement a tree master plan for the planting and maintenance of trees growing on public and private property throughout Redwood City. The plan should consider urban form, aesthetics, and the overall positive benefit trees provide to neighborhood character. In crafting the plan, the City should consider the relationship of street tree planting to other Climate Action and General Plan goals and policies, including pedestrian orientation, neighborhood character, and complete streets.

Through the Tree Master Plan, the City could establish standards for tree requirements for new development, tree maintenance, species selection, and minimum shading and tree canopy coverage. Species selection would take into account, for example, their ability to provide sufficient shade, reduce pollutants, produce oxygen, reduce stormwater runoff, retain moisture, minimize impact to infrastructure, have few known disease and insect pests, and acceptable fruit and flower litter. The Tree Plan will also establish tree criteria (such as minimum number of trees for street frontage) for new development and redevelopment projects, and facilitate canopy cover on streets and parking areas.

Plant New and Replacement Trees

Since 2000, the City has planted an average of approximately 400 new trees per year. Many of these have been planted in cooperation with the non-profit organization CityTrees, which planted its 2,000th tree in Redwood City in September 2008. Building on the partnership that exists between Redwood City and CityTrees, the community is encouraged to continue to plant more trees to provide appropriate shading, to reduce the heat island effect, for food production and to sequester carbon. Additionally, tree planting efforts can provide education and community building opportunities by engaging residents in the selection and tree planting process.

III. Promote Sustainable Landscaping Practices[19]

Implement a Green Gardener Certification Program

The Green Gardener Certification Program began in Santa Barbara County in March 2000. The goal of the program is to educate and certify local gardeners in resource efficient and pollution prevention landscape management practices. In 2005, with support from the State Water Resources Control Board, the non-profit organization Ecology Action collaborated with the Santa Barbara program to standardize the bilingual curriculum (English/Spanish) and implement the program in the Monterey Bay area. The Green Gardener Certification program has since

[18] General Plan NR-36
[19] General Plan NR-12

expanded to the Santa Clara Valley. The program is effective in teaching small scale and "mom and pop" landscaping businesses about sustainable practices. As interest in the community grows for pesticide free and drought tolerant landscaping, demand for Green Gardener Certification is expected to grow.

To help meet this demand, Redwood City is collaborating with municipal water districts, pollution prevention organizations and residential landscaping and gardening associations, to implement a local Green Gardener Certification program. The program will include professional training in how to use resources wisely, conserve water, protect the soil, and reduce waste. The program also includes a business promotion component and public outreach.

IV. Promote a Safe, Healthy and Local Food System[20]

Promote San Mateo County's "As Fresh as it Gets" Campaign

San Mateo County (Convention and Visitors Bureau, Farm Bureau, Agricultural Commissioner, and the Health System) as well as the farming, fishing and hospitality industries created the "As Fresh as it Gets" campaign in 2009 to support and encourage the consumption of local products. The campaign includes an identifying logo, website, promotional materials, awards and events that all serve to highlight San Mateo County's fresh, fruits, vegetables, seafood, and locally-produced cheese. Materials include a San Mateo County fresh produce and fish calendar, and a companion directory of the associated health benefits of eating fresh foods. The "As Fresh as it Gets" website also includes a location finder for local farmers' markets as well as cooking and event information.

The Redwood City community can join together with San Mateo County to promote the "As Fresh as it Gets" campaign to local residents. Encouraging the purchase and consumption of locally produced products is good for the economy and for public health. Since food produced locally has less distance to travel from production to table, eating locally also reduces the greenhouse gas emissions associated with the transport of food.

Encourage participation in local farmers markets

Farmers' markets are one of the oldest forms of direct marketing by small farmers. From the traditional "mercados" in the Peruvian Andes to the unique street markets in Asia, growers all over the world gather weekly to sell their produce directly to the public. In the last decade they have become a favorite marketing method for many farmers throughout the United States and a weekly ritual for many shoppers.

In a farmers' market, a group of farmers sell their products once or twice a week at a designated public place. Certified farmers' markets are market sites approved by the County Agricultural Commissioner and Health Department. They are part of a statewide program meant to increase the sustainability of small farmers by connecting the consumer and the farmer. All farmers selling at a Certified Farmers' market must have a Certified Producers Certificate from their local Agricultural Commissioner verifying that they grow the items that they sell.

[20] See appendix; Background Information: Summary of the Link between Food and Climate Change

There are many individual and community benefits to shopping at certified farmers' markets,

- The fruits and vegetables sold are grown locally and picked when perfectly ripened, which enhances the taste, texture, and health benefits of the produce

- Purchasing locally produced food reduces emissions associated with the transportation of food. Our existing system of food transportation and distribution requires enormous amounts of energy and resources. Before reaching your table, the average food item in the United States will travel *1,750* miles! In fact, only about 10% of the fossil fuel energy used in the world's food system is used for production. The other 90% goes into packaging, transportation, and marketing of the food. All this inefficiency burns fossil fuels and creates greenhouse gas emissions

- Purchasing produce at the farmers' market represents an investment in local farmers which benefits the community by strengthening local agriculture and the economy

The Redwood City community can encourage participation in local farmers' markets. This should begin by assessing participation levels in existing markets and convening farmers' market leadership to identify opportunities to strengthen local markets if needed while promoting the overall benefits of shopping at markets to residents. Redwood City should also consider how to ensure that farmers markets are accessible to low income community members and where possible strengthen access to fresh, locally grown produce to low income or fixed income residents.

Taft Community School and Hidden Villa have collaborated on a garden-based education project. The garden gives students the opportunity to learn about nature in their own community and the hands-on work they do in the garden compliments their science education.

Coordinate and offer community support to school garden programs

School gardening has taken off in Redwood City. As of July 2009, 14 schools in Redwood City have school gardens. The size and scope of existing school gardens ranges from fully staffed gardens that offer multiple school-wide programs, to small start-up gardens that are staffed by volunteers or maintained by an individual classroom.

The schools that currently have gardens are:

- Adelante Elementary
- John Gill Elementary
- Clifford Elementary
- Cloud Elementary
- Orion Elementary
- North Star Elementary
- Roosevelt Elementary
- Taft Elementary
- Fair Oaks Elementary
- Hoover Elementary
- Kennedy Middle School
- Redwood High School
- Sequoia High School
- Woodside High School

The Redwood City community can collaborate with schools to ensure the success and maintenance of school garden programs. This might include helping to organize school-community garden days, recruiting volunteers to maintain gardens during the summer months, identifying resources to expand garden education efforts, connecting older youth and younger youth in garden education, among other opportunities.

Facilitate public dialogue, resource sharing, and partnership development among community based organizations and residents

Redwood City's Climate Action Advisory Team noted that during Team conversations and outreach meetings, an unexpected theme emerged. One team member described the theme as a "ground swell for home gardening". Many ideas for implementing this theme were brainstormed. Some of these ideas included:

- Yard sharing – open yard up to community members who would like to garden
- Neighbors getting involved in school yard gardens, particularly in the summer
- Website to share ideas, food exchange and garden tours
- Mini farms
- Community infill gardens in public places
- Water conservation strategies
- Pollinator plant areas (bee boxes and bird houses)
- Landscape tours – opening up yards, edible landscape tours
- Neighborhood fruit harvesting events culminating in donations of food to local food pantries
- Combining Redwood City music and arts events with the Redwood City Farmers Market
- Much more . . .

Each of these ideas share a common interest in using urban ecology, gardening and food, as a means for connecting neighbors and building community. The Climate Action Advisory Team also identified that there are local organizations who share a mission to improve our local environment and food system. It was agreed that connecting interested community members with local organizations working toward similar goals would be a powerful means for sharing resources, organizing community involvement, and implementing locally identified strategies for carrying out urban ecology projects that preserve neighborhood green space, create community and connect people to their natural environment. Redwood City can play a critical role in bringing people and organizations together to dialogue and take action on these issues.

V. Connect Children and Youth to their Natural Environment Through Environmental Education

Tackling climate change is perhaps the biggest challenge facing our youth. Preparing them to successfully address this issue is a community imperative. A first step in this process is connecting children and youth to their local natural environment. Providing children and youth with opportunities to be outdoors has many benefits. Outdoor experiences provide ready opportunities to teach about climate change, renewable energy systems, and sustainability, among other important ecological principals. Connecting to the natural world helps young people to develop a stronger sense of place, a deeper connection to their community, and a greater sense of stewardship of the Earth. Youth who spend more time outdoors get more

physical exercise, and there is increasing evidence that being outdoors lowers stress levels. Studies of students in California also show that schools using outdoor classrooms produce significant student gains in social studies, science, language arts, and math. Our local high schools have recognized the needs and the benefits of engaging students in experiential learning and work experiences.

Facilitate, YO-It's Youth Outdoors! a community-wide initiative designed to facilitate getting youth outdoors in settings that promote fun and learning

YO – It's Youth Outdoors! proposes working collaboratively to develop a better understanding of the local community, its strengths, its needs, and issues of particular importance to youth. Through partnerships among the community and organizations, YO! will expand upon work already underway to encourage youth-adult partnerships and engage youth leadership. YO! will also build upon existing and emerging partnerships and facilitate cross-learning among organizations to improve programming and service delivery. Together, partners will design processes, curriculum, program models, and best practices in outdoor education that can be shared with others. Consequently, partners will deliver high impact, motivating outdoor experiences and programs to children and youth

As a result of implementation of the YO! Initiative, youth will have improved mobility and increased access to youth-friendly outdoor spaces. Youth will have increased access to outdoor experiential learning opportunities and work experiences. A progression of outdoor learning experiences will be put in place and will provide youth with greater choice (location, duration, intensity, and content), while offering them leadership opportunities. Youth will be engaged in place-based, community projects of their own design. There will be an increase in cultural competency, improved service delivery, and improved complementary programming among environmental education and youth serving organizations. Processes, curriculum, program models, and best practices will be documented and shared. Combined, these outcomes will equip youth to identify and implement sustainable solutions to the environmental challenges facing our communities.

Emissions Reduction Overview

Urban ecology projects offer many benefits. Urban forests and wetlands have the potential to sequester carbon by preventing emissions from entering the atmosphere. Trees and landscaping reduce heat island effects, absorb stormwater and remove air pollutants. Engaging the community in urban ecology projects builds community and promotes stewardship of the natural world and the conservation of resources. It is difficult to measure the reduction in carbon emissions associated with these types of efforts, and it is believed that by promoting stewardship and conservation, community members will further their own efforts to adopt sustainable behaviors in their everyday lives.

Progress Indicators

Redwood City has a healthy (and growing) urban forest.

- Tree Master Plan completed
- Number of new and replacement trees planted annually
- CityTrees remains an important community asset
- Number of volunteer tree planting activities
- Number of volunteers engaged in tree planting

Community members actively participate in urban ecology projects.

- Number of participants in city-wide clean-up days
- Number of participants in wetlands restoration projects
- Number of participants in urban park restoration efforts

Green Gardener Certification Program offers ongoing training for residential landscapers.

- Number and enrollment in training sessions
- Number of Green Certified Gardeners
- Number of residential homes served by certified Green Gardeners
- Decrease in pesticide use
- Decrease in residential landscape water consumption

Residents benefit from a safe, healthy, local food system.

- Increase participation in farmers markets
- Increase in the availability of fresh local produce in low income communities
- Increase in the number and/or viability of school and community garden programs

Children and Youth have access to more intensive natural experiences and develop healthy, active relationships with nature as it exists in their own neighborhoods

- Increase in youth familiarity with and connection to outdoor spaces nearby their homes
- Youth will have an increased knowledge of environmental literacy and understand the benefits of spending time in nature
- Youth will spend more time in the outdoor spaces nearby their homes with their families and friends

Potential CO_2e Reductions - 15% by 2020

The following table provides a snapshot of potential CO_2e reductions associated with the implementation of strategies outlined in the Redwood City Community Climate Action Plan. These numbers are estimates and were generated using the Climate and Air Pollution Planning Assistant tool developed by ICLEI. The information presented is useful for understanding the emissions reduction potential of given strategies. The data can also assist in program goal setting and evaluating progress overtime. Calculations provided do not take overlapping effects into account nor do they incorporate all potential actions associated with each strategy.

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URBAN ECOLOGY	**Metric Tons of CO_2e Reduced**
Maintain a healthy urban forest and plant new and replacement trees (500 trees planted)	511
Promote and encourage community involvement in urban ecology projects that preserve or expand natural spaces, create community and connect people to their natural environment	NA
Implement a Green Gardener Certification Program	NA
Promote a safe, healthy and local food system	NA
Connect children and youth to the natural world through environmental education	NA
Total estimated reductions	**511**

WASTE and RECYCLING

Minimizing the volume of trash that enters landfills conserves resources and protects the environment from the negative impacts associated with waste disposal. As landfill space diminishes, reuse and recycling become ever more necessary to reduce demand on non-renewable resources. Using recycled products also lowers energy consumption, as manufacturing new products from recycled materials often uses significantly less energy than manufacturing from raw materials.

Reducing the amount of waste going to landfills also helps curb global warming, as waste in landfills decomposes anaerobically and produces methane – which has around 23 times more greenhouse gas effect than CO_2e.

Waste reduction and recycling is also a proven tool for raising awareness about other elements of environmental sustainability. In addition to using disposed material for recycling, organic solid waste such as food scraps, fallen leaves, grass clippings and plant and tree trimmings can be used for compost. Construction and building demolition debris produces large quantities of solid waste, much of which can be recycled or processed for reuse. One of the basic principles of "Green Building", which is discussed in the Built Environment Section, is to use recycled and reused materials in new construction.

STRATEGY

I. Make the conservation of resources an integral part of waste management operations and increase recycling in the community.

I Make the Conservation of Resources an Integral Part of Waste Management Operations and Increase Recycling in the Community

Lead by Example

Redwood City can lead by example by demonstrating and promoting resource conservation and recycling within its own operations and at all Redwood City sponsored events. Redwood City can incorporate teaching about recycling within City sponsored youth programs such as afterschool programs and summer camps.

Enhance waste management and recycling services

In 2005, Redwood City adopted a waste reduction and recycling directive "to make resource conservation an integral part of the physical operation of the waste reduction and recycling programs". Currently, recyclable household waste is picked up every other week at residential curbside. There are also a variety of recyclable material drop-off locations in Redwood City and San Mateo County. In addition, Redwood City sponsors residential and commercial recycling information and education programs throughout the year.

To increase recycling in Redwood City, in 2009 the City initiated a new contract with Recology, a solid waste and recycling management company, to manage the solid waste for all areas of the City beginning in 2011. This company focuses on resource recovery and composting, with a goal of Waste Zero.

RecycleBank© partners with cities and haulers to reward households for recycling. Households earn RecycleBank Points that can be used to shop at over 1,500 local and national businesses.

Services in Redwood City residential areas by Recology will include:

- Weekly sold waste collection
- Weekly single stream recycling collection
- Weekly organics recycling collection
- Weekly plant materials recycling collection
- Weekly household batteries and cell phones recycling collection

Services for commercial users will include solid waste collection, single stream and source separated recycling collection, organics recycling collection, and plant materials recycling collection. Additional programs are also being considered.

To be successful, residents, households and commercial users must make recycling a habit. This should include encouraging recycling at an early age.

Engage the community in identifying resource conservation and recycling solutions

To strengthen the implementation of this goal, Redwood City can facilitate dialogue, resource sharing and partnership development among community organizations, groups and residents to highlight and promote resource conservation and recycling efforts in diverse settings in the community. Examples of activities that might be identified and implemented as a result of this type of civic engagement effort include:

- Implementation of a Recycle Bank type program
- Reusable bag campaign
- Promotion of sustainable packaging to merchants
- Increase in school recycling efforts
- Volunteer recycling corps to implement waste reduction and recycling at City sponsored events

Emissions Reduction Overview

To stay on track to achieve the community's emission reduction target, the community should reduce the emissions that result from the waste sector by 15% by 2020. This will require reducing emissions associated with waste from an estimated 20,833 – 17,708 metric tons, for a total reduction of 3,125 metric tons of CO_2e.

Progress Indicators

Residential and commercial properties have access to and use comprehensive waste reduction and recycling programs that move the community in the direction of a zero waste goal.

- Weekly sold waste collection is in place and utilized
- Weekly single stream recycling collection is in place and utilized
- Weekly organics recycling collection is in place and utilized
- Weekly plant materials recycling collection is in place and utilized
- Weekly household batteries and cell phones recycling collection is in place and utilized

Recycling is common place at community events and activities.

- A volunteer recycling corps organizes recycling efforts at community events and provides education to community members on recycling

Schools teach and demonstrate recycling to children and youth.

- Every school has a recycling program
- Every school garden has a composting system

Potential CO_2e Reductions - 15% by 2020

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WASTE & RECYCLING	Metric Tons of CO_2e Reduced
Make resource conservation an integral part of the physical operations of waste reduction and recycling	3,357
Total estimated waste and recycling emissions reductions	**3,357**
Waste & Recycling emissions reduction goal	3,357
Difference between estimated reductions and goal	**0**